

REMARKS

Applicant respectfully requests that the above-identified application be re-examined.

The September 27, 2002, Office Action in the above-identified application objected to claims 5-12 for being in improper form due to alleged multiple dependencies and related improprieties, rejected claims 1 and 4-10 under 35 U.S.C. § 112 for a variety of reasons, rejected claims 1-5 and 7-12 under 35 U.S.C. § 103(a) as being unpatentable in view of U.S. Patent No. 5,762,379 (Salmon et al.) and rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable in view of Salmon et al. taken in view of U.S. Patent No. 5,766,738 (Philips et al.). Claims 4-6 were also rejected as being improper product-by-process claims. This amendment cancels claims 6 and 10, makes a variety of form changes to claims 1-5, 7-9, and 11-12 directed to obviating the form objections and rejections set forth in the September 27, 2002, Office Action and adds new claims 13-42. In addition, minor editorial changes have been made on pages 5 and 8 in order to make the language more consistent with the drawings and clarify certain aspects of the invention shown in the drawings. For the reasons hereinafter set forth, applicant respectfully submits that all of the amended claims remaining in this application and the new claims are allowable.

Objections to the Claims

In regard to the objection under Section 37, C.F.R. 1.75(c), the claims have been amended to remove the improper multiple dependency.

Regarding the objection to the preamble of the claims, namely, "A security document or other device," this language has been changed to "An article." Further dependent claims listing specific articles in Markush grouping form have been added. The claims are intended to cover a variety of articles and, except for the Markush claims, should not be construed as limited to the specific articles listed in the Markush group. The invention may be embodied in a security document. Alternatively, the invention may be embodied in a device such as a credit card. In another form, the device may comprise a security feature which has not yet been attached to a document such as a passport. All of these alternatives fall within the spirit and scope of the invention as defined in the claims.

In regard to the term "including," this has been changed to the term "comprising" in claim 1 and claim 11.

The term "substantially" has been deleted from claim 1.

Regarding the term "partially," applicant directs attention to the fact that ink has light reflectance characteristics that are both specular and non-specular (i.e., scattered). Due to these characteristics, applicant submits that it is not necessary to define the degree of specular reflectance compared to scattered reflectance as a person skilled in the art would know when both specular and non-specular reflection is achieved. For these reasons, applicant further submits that "partially" is not indefinite and requests that this objection be withdrawn.

Claim 1 has been amended for greater clarity since the original wording of this claim could be construed as referring to "*scattering of the . . . transmittance in at least a partially specular manner.*" Because "specular" is a term applying to reflectance, claim 1 has been amended to read as follows:

... ink having properties which render the raised print image transparent or translucent while causing scattering of the light reflectance and transmittance such that the ink reflects light in a partially specular manner.

The Office Action queries how ink can be both transparent/translucent and specular at the same time. Applicant submits that a person skilled in the art would understand that certain materials can both partially reflect and partially transmit light. The ink claimed is such a material. Further, the light that is reflected is not necessarily all reflected in a uniform manner at an angle of reflection that is equal to the angle of incidence. The ink scatters some of the reflected light. Accordingly, the ink reflects light in at least a partially specular manner.

Claim 5 has been amended to eliminate the antecedent basis objection. Further, claim 5 has been amended to recite that the smooth highly reflective layer is applied to a specific region of the substrate and a remaining portion of the substrate has printing applied by the same process. This amendment is supported by the description on page 3, lines 20-22.

In claim 9, the limitation "film of the type suitable for the production of bank notes" has been removed.

Since claim 10 has been canceled, the objection to this claim will not be discussed.

35 U.S.C. § 103(a) Rejections

As noted above, prior claims 1-12 were all rejected in the September 27, 2002, Office Action as unpatentable based on the teachings of U.S. Patent No. 5,762,379 (Salmon et al.) and U.S. Patent No. 5,766,738 (Philips et al.). The Salmon et al. patent forms the main basis of the obviousness rejections. This patent discloses a printed article such as a trading card which has a

substrate 16 illustrated in Figure 1. Ink is deposited onto the substrate 16 by processes such as screen printing, lithography, flexography and coating to form a textured surface. A film 10 is then formed over the substrate 16 and conforms with the textured pattern on the substrate. The patent discloses that the film 10 may constitute a reflective film, for example, formed by depositing a layer of reflective silver ink. Alternatively, metal foil may be laminated to the substrate using a primer 15. An ink design 14 is then printed onto the reflective film 10 by suitable printing methods including silk screening, lithography and flexography. The ink design 14 in the preferred embodiment is made up of two layers of ink 17 and 18. Layer 18 is described as translucent ink whereas layer 17 is described as having an opacity of slightly less translucency than layer 18 to completely opaque. The portions of ink layer 18 which do not overlie the layer 17 will appear shiny and metallic as light is reflected by the reflective film. Conversely, those portions of ink layer 18 which overlie layer 17 will have a flat appearance because the less translucent ink will prevent light from being reflected by the reflective film.

A particular example is shown in Figures 2 and 3. It is applicant's understanding that the sports trading card shown is built up of a textured substrate, a reflective layer, a less translucent ink layer and a translucent ink layer, in that order. The less translucent ink layer covers the entire reflective film except for those areas corresponding to helmet 30 and football 38. It is understood that the helmet 30 and football 38 are still covered by the translucent ink layer. It would appear that the translucency of the ink over the helmet 30 and football 38 is such as to still allow substantially specular reflection with the rest of the image having a flat appearance in contrast due to the less translucent ink.

It seems apparent from Salmon et al. that the image is made up primarily of the layer of ink 18 (see column 4, lines 16, 17, and column 4, lines 42, 43, and column 2, lines 20-25). It is also apparent that the less translucent ink layer 17 is applied selectively according to the particular image formed by the layer of ink 18. Thus, both the ink layer 17 and the ink layer 18 make up the ink design 14 (see column 4, lines 15-17). It is therefore submitted that the deposition of ink layer 17 is dependent upon and related to the image formed by ink layer 18.

When viewed within the window of high reflection, the raised print image of embodiments of the present invention become more apparent against the background of the smooth highly reflective layer due to the scattering of light caused by the transparent/translucent ink of the raised printed image. When the raised print image is viewed outside the window of reflection, there is no marked contrast between the image and the reflective layer. Thus, the

transparent/ translucent ink image is essentially invisible. This is specifically supported by the specification on page 2 from line 13 to line 18 and also from page 2, line 20, to page 3, line 3.

If the ink of the raised print image is likened to the less translucent ink layer 17 of Salmon et al., applicant points out that the arrangement of the less translucent ink layer 17 is dependent upon the arrangement of layer 18, both of which contribute to ink design 14. It is submitted that the less translucent ink layer 17 operates for enhancement of the ink design 14 at certain angles. Because the ink layer 17 works with the image of layer 18, the ink layer 17 will never be permitted to "disappear" as in embodiments of the present invention. The overall effect of a disappearing image as claimed in claims 1 and 11 would not be apparent from Salmon et al. In this regard, the claims define this disappearing effect as "substantially non-detectable." Applicant submits the word "substantially" is allowable in this context in order to avoid any overly strict interpretation of the claim language. Salmon et al. simply does not teach a person of ordinary skill in the art to produce a disappearing image in the claimed manner.

Claim 1 also includes other limitations such as a reflectivity of at least 60 gloss units that are not taught by Salmon et al. Salmon et al. does not specifically disclose the level of gloss. Furthermore, Salmon et al. does not specifically disclose a raised print image with a height of at least 10 microns. It is submitted that the textured regions do not necessarily correspond with the pattern of the different ink layers 17, 18. Salmon et al. indicates that the translucent ink layer 18 and the less translucent ink layer 17 may be applied by printing methods including silk screening, lithography and flexography. It is submitted that these processes do not typically produce an ink thickness of at least 10 microns. Salmon et al. does not indicate the particular thickness of the ink layer 17. It is therefore further submitted that Salmon et al. does not provide guidance as to the appropriate parameters for producing a disappearing ink image. Thus, Salmon et al. does not teach a person of ordinary skill in the art how to create a disappearing ink image appropriate for use as a security feature.

Regarding dependent claims 2-5 and 7-9 and 12, applicant submits that these claims are allowable for at least the same reasons that the claims from which they depend (1 and 11) are allowable.

New dependent claims 13 and 14 contain Markush groups that list articles identified in the specification.

New dependent claims 15-20 expand on independent claim 12. New dependent claims 21 to 28 are directed to the particularly preferred embodiment described in connection

with Figure 3 of the specification at page 8, lines 1-15, and page 4, line 19, through page 5, line 3.

New dependent claim 29 contains a Markush group that lists articles identified in the specification.

New independent claim 30 includes all of the limitations of former claim 1 together with the limitation that a non-reflective image is provided on the reflective layer. This is supported by the specification at page 4, line 20.

When an article of the type covered by claim 30 is viewed in the window of high reflection, the image produced by the transparent/translucent ink is the visible image. When the document is viewed outside the window of high reflection, the non-reflective image is the visible image. This is clearly different from Salmon et al. where there is no underlying non-reflective image.

New claims 31 - 42 all depend from claim 30.

Other Objections

Page 5 of the Office Action objected to claims 4 to 6 on the basis that they are product-by-process claims. Of these claims, claims 4 and 5 have been amended in a manner that applicant submits renders this objection moot, and claim 6 has been canceled.

The Office Action also appears to object to the phrase "raised printed image applied to . . ." as it appears in claim 1. The term "printed" is descriptive of the physical characteristic of the layer. The essence of this feature is that it is a print layer. In this regard, claim 1 has been amended to change the descriptive term "printed" to "print" so that this form now reads "raised print image."

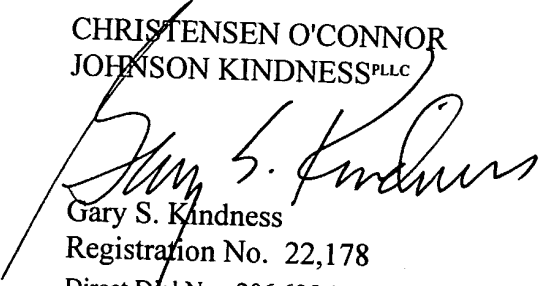
CONCLUSION

In view of the foregoing amendments and remarks, applicant respectfully submits that all of the claims of this application are clearly patentably distinguishable over the cited and applied references and, thus, that this application is in condition for allowance. Consequently, early and favorable action allowing all of the remaining claims and passing this application to issue is

respectfully solicited. If the Examiner has any remaining questions, she is invited to contact applicant's attorney at the number set forth below.

Respectfully submitted,

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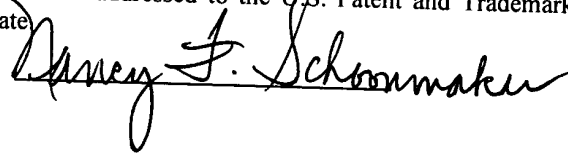
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VERSION WITH MARKINGS TO SHOW CHANGES MADE JANUARY 15, 2003

In the Specification:

The paragraph beginning at page 5, line 1, has been amended as follows:

For the translucent ink to optimally blur the non-reflective indicia, the pitch of the intaglio lines or dots [should be] can vary from roughly twice that of the indicia[, as] (1:2) to the ratio illustrated in Figure 3 (approximately 1:5).

The paragraph beginning at page 8, line 1, has been amended as follows:

By printing an image 3 of dots (Figs 3(a) and (b)) on lines (Fig 3(c)), using substantially transparent or translucent ink on the reflective layer or patch 1, a slightly specular scattering of the light is caused by the translucent intaglio ink when the document is viewed within the window of high reflection, which [,] is of a high contrast to the relatively coherent reflections from the substrate. This contrast causes the image produced by the printed translucent intaglio ink to be very visible. [It will be noted from] As shown in Fig. 3 [that] , the pitch of the intaglio dots and lines is about half the [pitch] height of the underlying indicia. The pitch of the dots/lines is about 1/5 of the pitch of the underlying indicia in the exemplary embodiments of the invention shown in Fig. 3.

In the Claims:

1. (Amended) [A security document or other device including] An article comprising a substrate, a smooth highly reflective layer applied to said substrate and having a reflectivity of at least 60 gloss units, and a raised [printed] print image [applied to] on said reflective layer [by a printing process], at least part of said raised [printed] print image having a height of at least 10 microns, said [printed] raised print image [being printed using] formed by ink having properties which render [it substantially] the raised print image transparent or translucent while causing scattering of the light reflectance and transmittance such that the ink reflects light in [at least] a partially specular manner, wherein the raised print image is visible at angles within a window of high reflection and substantially non-detectable outside the window.

2. (Amended) [The security document of] An article as claimed in claim 1, wherein the [translucent] ink has a haze value in the range of about 60 to 98, as measured on an XL 211 Hazegard haze measuring instrument and an ink thickness of about 15 microns.
3. (Amended) [The security document of] An article as claimed in claim 2, wherein the haze value is about 85 to 95.
4. (Amended) [The security document or device of] An article as claimed in claim 1[, 2 or 3], wherein the smooth highly reflective layer is [applied to said substrate by a printing process] a print layer.
5. (Amended) [The security document or device of any preceding] An article as claimed in claim 4, wherein [the printing process is the same printing process used to print the remainder of security document or device] the smooth highly reflective layer is applied to a specific region of the substrate and a remaining portion of the substrate has printing applied by the same process as the smooth highly reflective layer.
7. (Amended) [The security document or device of any preceding] An article as claimed in claim 1, wherein the reflective layer is about 3 microns thick.
8. (Amended) [The security document or device of] An article as claimed in any one of claims 1[to]-5 or 7, wherein the smooth highly reflective layer [compresses] comprises a reflective foil applied to the substrate.
9. (Amended) [The security document or device of any preceding] An article as claimed in claim 4, wherein the substrate is a smooth surfaced polymer film [of the type suitable for the production of banknotes].
11. (Amended) A method of producing [a security document or other device] an article[, including] comprising the steps of applying a smooth highly reflective layer to a substrate, said reflective layer having a reflectivity of at least 60 gloss units, and printing a raised printed image on the reflective layer, at least part of said raised printed image having a height of at least 10 μm and being printed using ink having properties which render it substantially transparent or translucent while causing scattering of the light reflectance and transmittance such that the ink reflects light in at least a partially specular manner, wherein the raised printed image

is visible at angles within a window of high reflection and substantially non-detectable outside the window.

12. (Amended) The method of claim 11, [including steps which produce a document or device as claimed in any one of claims 2 to 10] wherein the ink has a haze value of about 60 to 98 as measured on an XL 211 Hazegard haze measuring instrument and an ink thickness of about 15 microns.

Claims 6 and 10 have been canceled.

New claims 13-42 have been added.